April 23, 1957 B. KLASSEN 2,789,345

ELECTRICALLY OPERATED CAN OPENER

Filed March 26, 1956 4 Sheets-Sheet 1

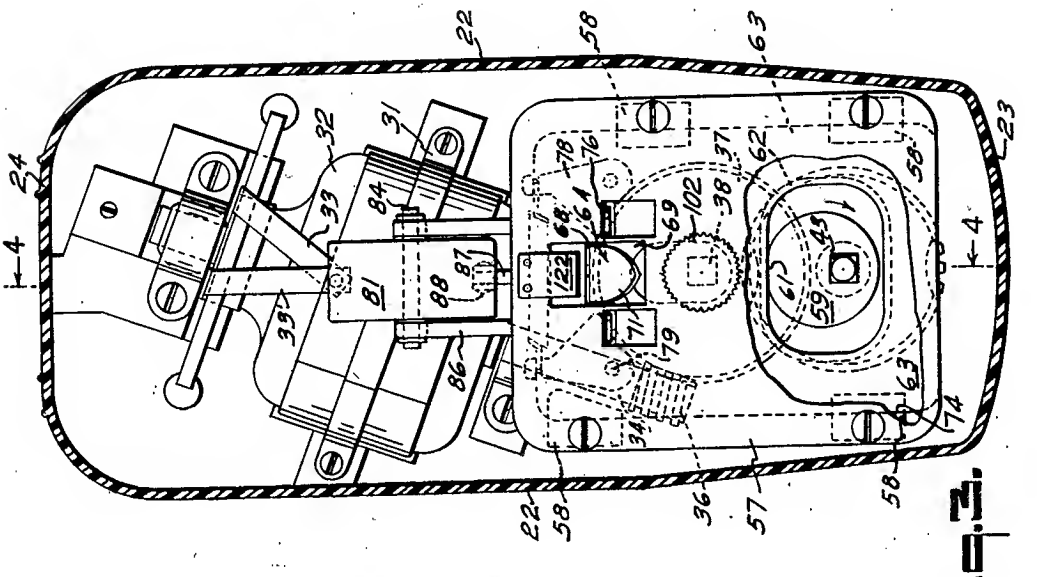

Fig. 2.

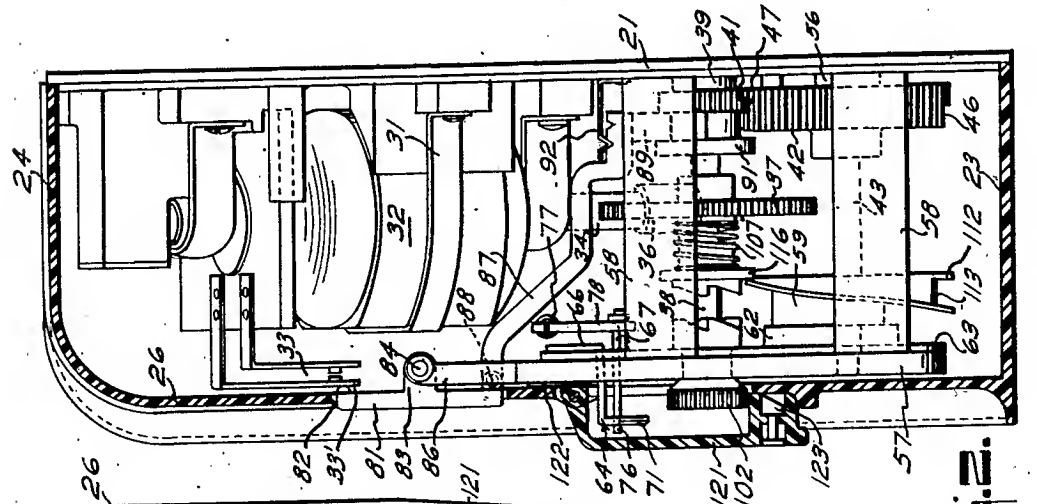

Fig. 3.

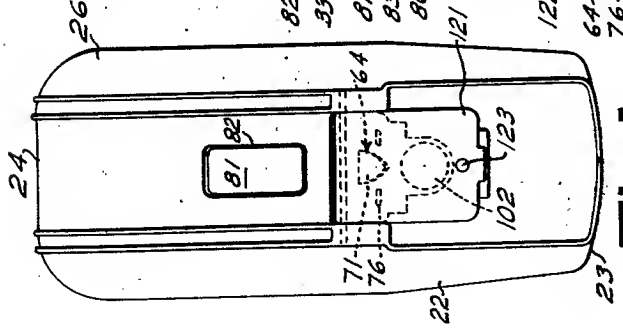

Fig. 1.

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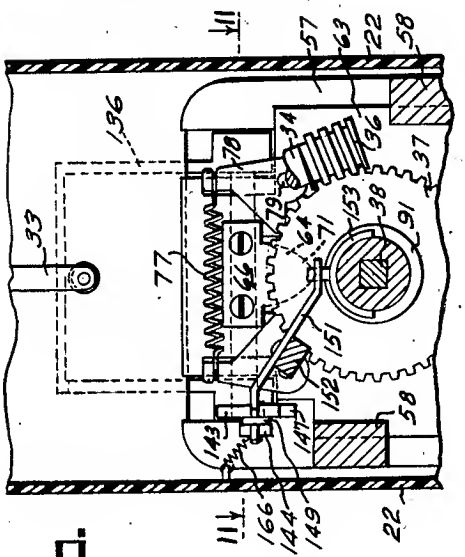

Fig. 10.

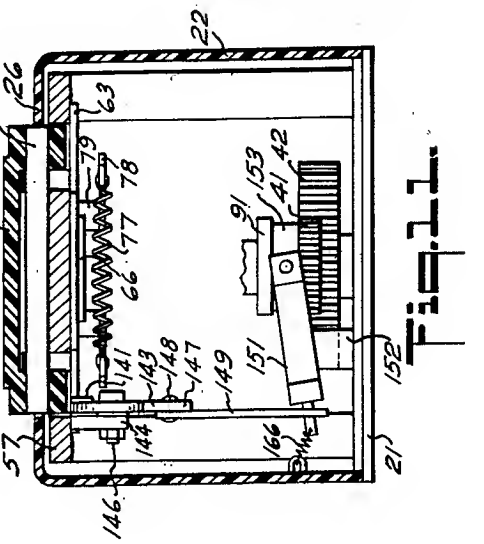

Fig. 11.

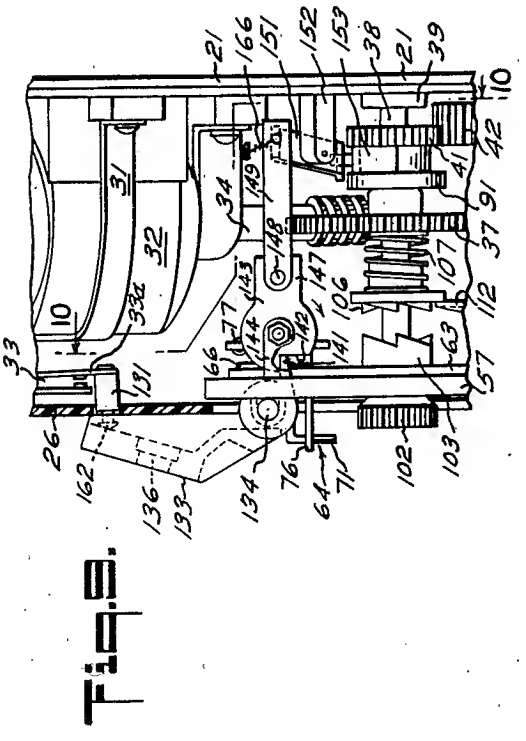

Fig. 9.

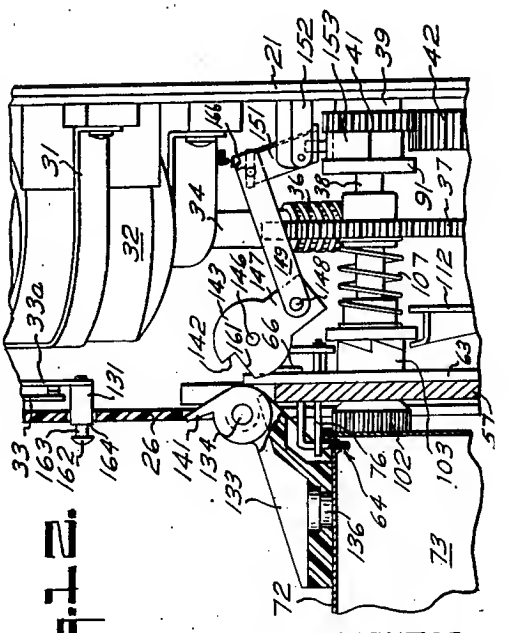

Fig. 12.

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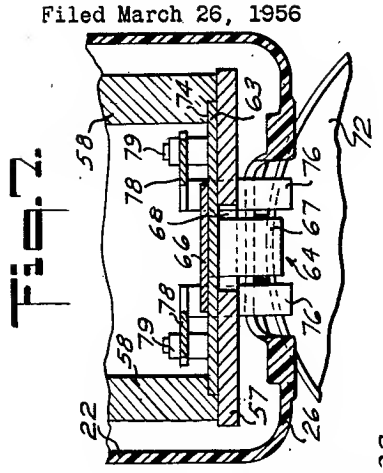

Fig. 7.

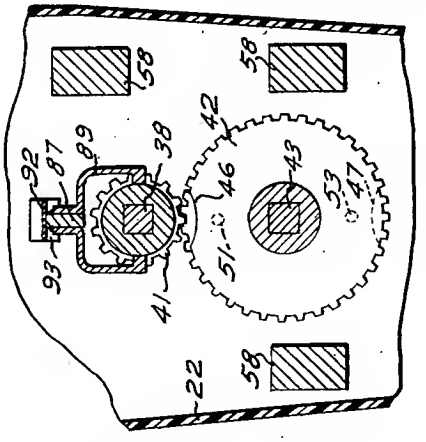

Fig. 6.

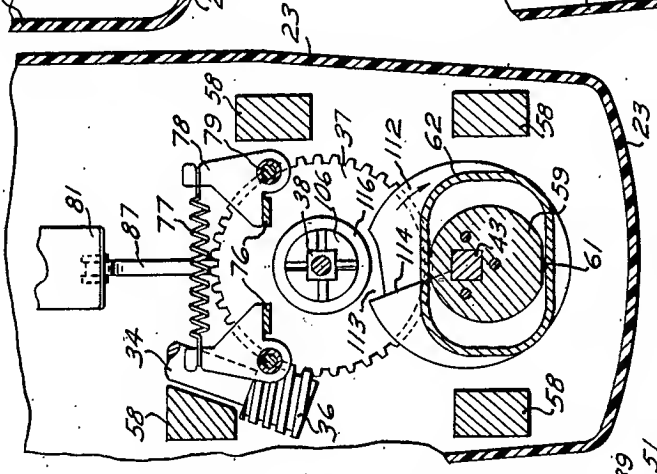

Fig. 5.

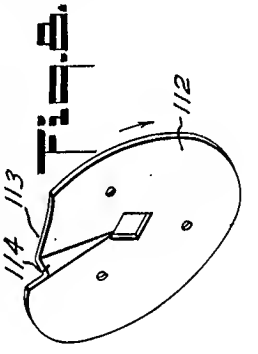

Fig. 8.

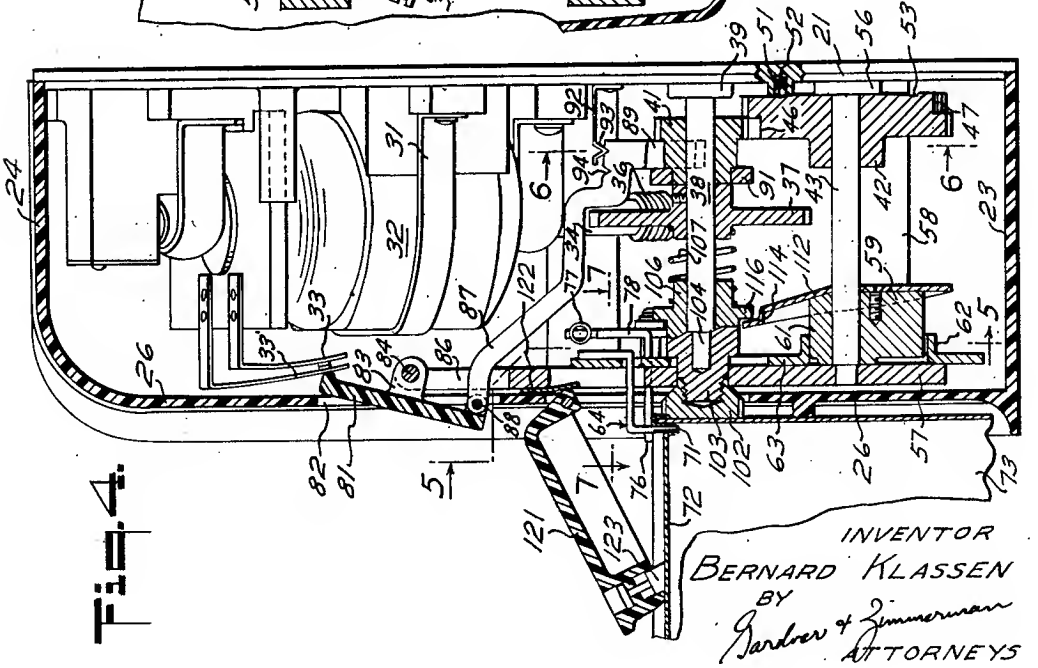

Fig. 4.

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Fig. 13.

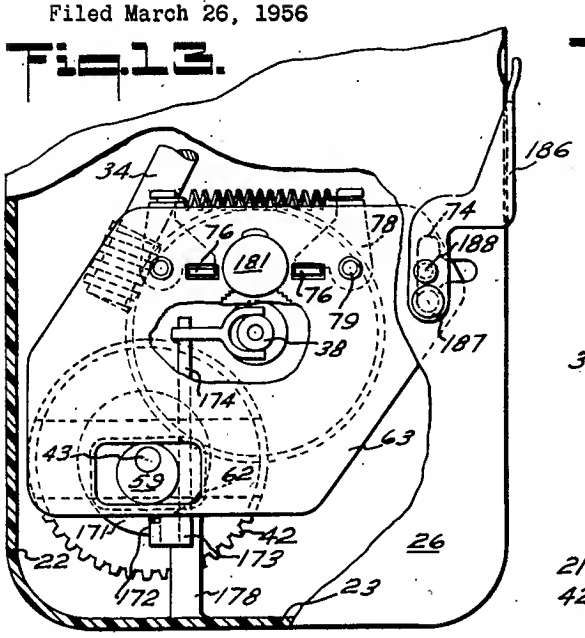
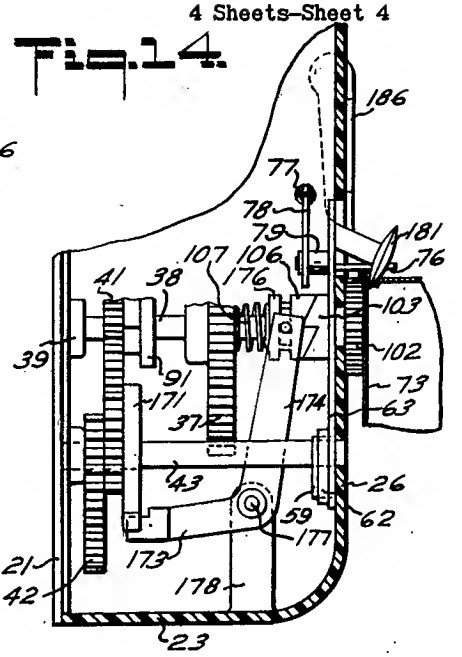


Fig. 14.



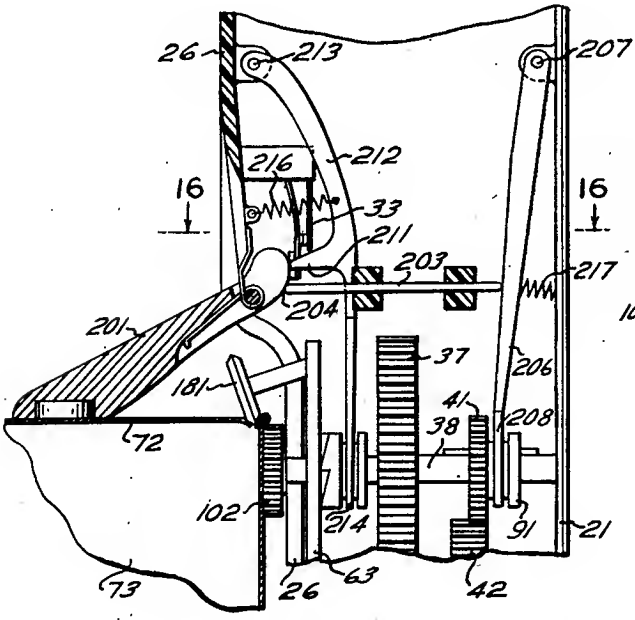


Fig. 15.

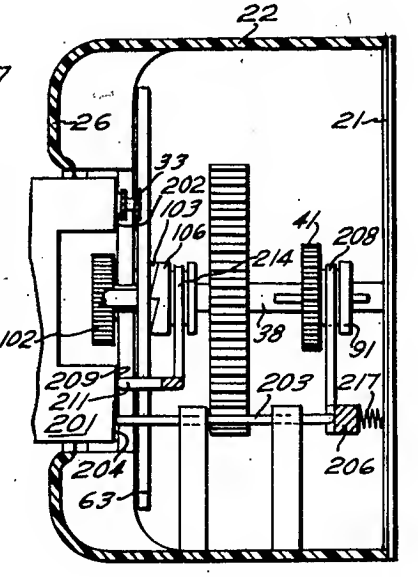


Fig. 16.

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ELECTRICALLY OPERATED CAN OPENER

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Application March 26, 1956, Serial No. 573,876

19 Claims. (Cl. 30—4)

This invention relates to can openers, and is more specifically directed towards a can opener in which the operating parts thereof are electrically actuated.

Numerous attempts have been made to design an electrically operated can opener which would be capable of readily cutting and removing the top portion of a can so as to provide access to the can contents. While it is not an impossibly hard task to provide such a mechanism, no suitable electric can opener has heretofore been made available which not only incorporates the above mentioned functional requirements, but which is of sufficiently simple design to warrant its production on a commercial basis.

It is therefore an object of the present invention to provide an electrically operated can opener which is simple in construction and whose parts are such as to permit economical manufacture of the unit for widespread distribution.

Another object of the invention is to provide an opener of the type described in which the can to be opened is positively positioned and rotated relative to the knife or other cutter member, and in which means are provided for automatically inserting the cutter into and withdrawing the same from the can at the starting and stopping respectively of the opening operation.

A further object of this invention is to provide a can opener of the above type in which the can cutting portions of the device are substantially enclosed and protected until the user desires to effect the opening of a can.

Yet another object of this invention is to provide an electrically actuated can opener which is so arranged that a single operation of the starting switch results in a cutting member entering the can, can engaging means effecting a rotation of the can about its longitudinal axis whereby the cutting member may completely cut off the lid, halting can rotation, and then withdrawing the cutting member to its inoperative position.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawings and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawings:

Figure 1 is a front elevational view of the can opener of the present invention.

Figure 2 is a side elevational view of the unit with a portion of the casing being broken away to disclose features of internal construction, the parts being illustrated in their inoperative position.

Figure 3 is a front elevational view of the unit with the casing removed.

Figure 4 is a vertical side sectional view taken substantially in the plane indicated by line 4—4 of Figure 3, and illustrating the parts in their operative position.

Figure 5 is a front sectional view taken substantially in the plane indicated by line 5—5 of Figure 4.

Figure 6 is a front sectional view taken substantially in the plane indicated by line 6—6 of Figure 4.

Figure 7 is a top plan sectional view taken substantially in the plane indicated by line 7—7 of Figure 4.

Figure 8 is a perspective view of the clutch actuating cam.

Figure 9 is a portional view similar to Figure 2, but illustrating a modified form of gear shift mechanism.

Figure 10 is a rear sectional view taken substantially in the plane indicated by line 10—10 of Figure 9.

Figure 11 is a top plan view taken substantially in the plane indicated by line 11—11 of Figure 10.

Figure 12 is a side view similar to Figure 9 but illustrating the gear shaft mechanism in its operative position.

Figure 13 is a front elevational view with the casing broken away, and illustrating a modified form of knife plate and clutch actuating cam.

Figure 14 is a side elevational view of the modified structure shown in Figure 13.

Figure 15 is a side elevational view of a further modification for shifting of the clutch and gear.

Figure 16 is a sectional view taken substantially in the plane 16—16 of Figure 15.

While various structural modifications are illustrated in the drawings, in broad terms, the electric can opener of the present invention is a self contained unit having a small drive motor which is designed to effect in proper sequence a raising and lowering of a cutting knife, engagement, rotation and release of a can to be opened, and such oher movements as are required in the drive mechanism to permit the foregoing.

Referring first to the main embodiment as illustrated in Figures 1 through 8 of the drawings, my improved can opener will be seen to include a housing having a rear wall 21, side walls 22, a bottom 23, a top 24 and a front wall 26. The rear wall 21 is preferably adapted to be positioned and supported adjacent a wall surface whereby the front of the unit will be exposed, and as will be later explained, in position to engage a can and open the same. preferably the rear wall is formed separately of the other wall members, and is adapted to be releasably attached thereto.

Mounted within the housing, such as by brackets 31 carried by rear wall 21, is a drive motor 32 of conventional design, and having suitable leads (not shown) for connection to a power source, such as a convenient wall socket. The motor is provided with a switch 33 which when closed, serves to energize the motor, and more particularly impart rotation to the motor shaft 34. The distal end of drive shaft 34 is provided with a worm 36 which is meshed with a worm gear 37, the latter being mounted on a shaft 38, preferably of square cross sectional form and whose rear end is mounted in a bearing 39 carried on rear wall 21.

Axially slidable on but rotatable with shaft 38 is a transfer gear 41 positioned intermediate bearing 39 and the main driven gear 37, whose rotation is imparted directly by the motor. Transfer gear 41 is adapted to drive what will be termed as a cam operating gear 42, the latter being mounted on a shaft 43, disposed in subjacent parallel relationship to shaft 38, and likewise preferably of square cross-sectional form. Cam operating gear 42 is best illustrated in Figures 4 and 6 of the drawings, and it will be seen that such gear is substantially twice the thickness of transfer gear 41, and as will be later explained, gear 41 is arranged to be moved axially on shaft 38 a distance substantially equal to the

thickness thereof whereby in its forward position it will be engaged with the forward half of gear 42, and in its rearward position will be engaged with the rear half of gear 42. The toothed periphery of the forward half of gear 42 is provided with a notched or cut out portion 46, and in diamctrically opposed relation thereto is a similar notched or cut out portion 47 on the rear half of the gear. Thus, with this arrangement, it is possible to have the constantly rotating gear 41 drive gear 42 through 180 degrees of rotation until one of the notches is reached, at which time the gears will be out of mesh and no further rotation of gear 42 or its shaft 43 will be effected. Then, by axially shifting gear 41, the other half of gear 42 will be meshed therewith, and another 180 degrees of rotation will be obtained. In order to prevcnt rotational inertia from carrying gear 42 beyond its normal 180 dcgree rotational cycle, a suitable detent in the form of a ball 51 is carried on rear wall 21 and normally urged by a spring 52 towards the rear surface of gear 42. In radial alignment with the notched portions 46 and 47 are dimples 53 which receive the ball when gear 42 is in either of its rest positions. Accordingly, notwithstanding the continuous rotation of gear 41, the cam operating gear 42 may be intermittently rotated through 180 degree cycles of rotation for a purposc to bc later discussed.

The rear end of shaft 43 is carried in a bearing 56 mounted on the rear wall, and the front end is journalled in a vertical plate 57 positioned adjacent and rearwardly of front wall 26 and mounted on horizontal posts 58 extending forwardly of the rear wall. Adjacent the forward end of shaft 43 is an eccentrically mounted cam 59 which has a generally circular periphery provided with a flattened portion 61 positioned at a greater distance from shaft 43 than the diametrically opposed peripheral circular portion. The cam 59 is in engagement with a generally rectangular flange 62 extending rearwardly from a vertically disposed plate 63 which is adapted to slide along the rear surface of the supporting plate 57. So long as the upper portion of the flange is engaged with the flattened portion 61 of cam 59, the platc 63 will be maintained in its uppermost position. Clockwise rotation of the cam bearing against the flange 62 will result in the plate moving downwardly until the cam has rotated 180° to the position shown in Figures 4 and 5, at which time the plate is in its lowermost position. Continued rotation of the cam through the remaining 180° will raise the plate again to its uppermost position as viewed in Figure 3.

The flattened portion 61 serves as a detent in cooperation with detent 51 to prevent continued rotation of the cam beyond its previously discussed 180 degree rotational cycle.

Thc plate 63 is of generally rectangular configuration and adjacent its upper end is provided with a cutting knife generally indicated by the numeral 64. As best secn in Figures 4 and 7 of the drawing the member 64 is provided with flange 66 mounted on the rear surface of plate 63, a web portion 67 extending forwardly through a slot in the plate and through openings 68 in plate 63 and 69 in plate 57 and front wall 26 respectively. The distal end of web 67 which extends beyond the front wall of the housing is provided with a downturned knife 71 having a sharpened or beveled end portion for entry into a can and for severing the can lid. In Figure 2 the plate 63 and its attached knife 64 are shown in their raised or inoperative position. In Figure 4 the knife is shown in its lower operated position in piercing engagement with the lid 72 of a can 73 adjacent the can bead. In this latter position it will be appreciated that rotation of the can will result in a complete removal of the lid 72 thereof. At this time it should be mentioned that plate 63 is guided in its vertical travel by being seated in notched portions 74 formed in posts 58 adjacent the supporting plate 57 as best seen in Figure 7.

To maintain the can 73 in proper vertical alignment during the cutting operation a pair of bead engaging fingers 76 are provided in laterally spaced relation. These fingers are likewise carried on plate 63 and as shown in Figures 5 and 7 are normally urged toward can engaging position by means of a spring 77 whose ends are connected to a pair of dogs 78, the latter being mounted in spaced relation to the plate 63 on pivots 79. In Figure 5 it will be seen that adjacent portions of the respective dogs arc integrally connected to the respective fingers. In this manner, when the cutting knife is moved into engagement with the can lid the fingers 76 will be likewise brought into engagement with spaced portions of the can bead and serve to prevent displacement of the can.

To effect the foregoing raising and lowering of plate 63 and corresponding movement of knife 64 and bead engaging fingers 76, the following mechanism is utilized. First, in order to close the switch 33 an actuating lever 81 is provided such lever, as will be seen in Figure 2, normally being disposed in an opening 82 in the front wall of the housing and in substantial coplanar relationship therewith. The plate substantially medially with the ends thereof is provided with a pair of ears 83 for receiving a pin 84, the latter being suitably journalled in a pair of spaced brackets 86 extending upwardly from the upper end of supporting plate 57. The upper portion of the lever is positioned adjacent one of the contacts 33' of the switch so that as the lever is pivoted in the direction shown in Figure 4 of the drawings, the switch will be closed, the motor 32 energized and the shaft 38 rotated. Prior to manual engagement of the lever the transfer gear 41 is disposed in its rearmost position and in alignment with the notched portion 47 of the rear half of cam gear 42, however, it will be noted that as the lever is rotated to effect a closing of the switch means are provided for simultaneously shifting gear 41 to its forward position and in alignment with the forward half of gear 42. As here shown such means includes a link 87, having one end thereof pivotally secured to the lower end of lever 81 such as by a pin 88. The other cnd of the link is provided with a downwardly directed yoke 89 which is operatively inserted between the front surfaee of gear 41 and the rear surface of a collar 91 which extends radially outwardly from the gear hub and which is positioned in axially spaced relationship to gear 41, thus, as the lever 81 is moved to its operative position the link 87 will effect a forward movement of gear 41 and cause an engagement of the latter with the teeth on the forward portion of gear 42. To prevent dislodgement of the yoke from its interconnection between gear 41 and collar 91 a detent in the form of a leaf spring 92 may be provided which is secured to and extends forwardly from the rear wall. The spring is provided with a depending V-shaped portion 93 which is adapted to be inserted in complementary shaped grooves 94 positioned on portions of the link for receiving the projection in the operative and inoperative positions thereof.

With gear 41 and the forward half of gear 42 in operative engagement rotation of the former will effect a similar rotation to the latter and to its shaft 43, however, the shaft's rotation will be limited to 180° since after this amount of travel, gear 41 will become aligned with the notch 46 and become disengaged from the gear. During this 180° travel the cam 59 will move to the position shown in Figures 4 and 5 wherein the knife and bead engaging members are moved downwardly due to their connection with the plate 63, thus, with a can 73 in position the switch actuation will initialy result in a piercing of the can lid by the knife and an engagement of the upper portion of the can bead by the fingers 76. Then, if the can is caused to rotate the knife will cut the lid along the periphery of the latter.

The can 73 is supported in the position shown for opening by means of a knurled drive wheel 102. As shown in

Figure 4 the wheel extends forwardly of the housing and the outer portion of the can bead is adapted to be inserted over the upper periphery of the wheel, then, when the knife and fingers are moved downwardly as above explained the can will be held in position and rotation of the wheel will effect a driving of the can about its longitudinal axis. Rotation of wheel **102** is effected through the shaft **38**, but it is important that no rotation is effected until the plate **63** has completed its downward movement and the knife and fingers placed in operative position on the can. Thus, although shaft **38** is continuously rotating the knurled wheel **102** is designed to remain stationary until shaft **43** has moved cam **59** into the operative position shown in Figures 4 and 5 of the drawings. This may be readily effected by attaching the wheel **102** to a clutch element **103**, the latter being freely rotatable on a cylindrical extension **104** of shaft **38** and extends through suitable openings provided in the plates **57** and **63**. A second clutch element **106** is mounted for rotation with shaft **38** but is axially movable thereon. Element **106** is normally urged into driving engagement with element **103** by means of a spring **107** interposed between gear **37** and element **106**. So long as the clutch elements are in abutting relationship wheel **102** will be continuously rotated with shaft **38**. However, since can rotation is not desired until the plate **63** has moved downwardly as above explained means are provided for maintaining the clutch elements in axially spaced relation until the plate has reached its lower position. As here shown this is accomplished by means of a cam **112** which is mounted on shaft **43** and preferably screwed or otherwise secured to the rear surface of cam **59**. Cam **112** is best shown in Figure 8 of the drawings and is of generally disk-like configuration with a portion of its periphery notched out as indicated at **113**. As viewed in said figure, in a clockwise direction the cam is vertically disposed and then is offset forwardly so that at the juncture with the cut out portion there is provided a shoulder **114**. The rear face of the cam **112** is in engagement with a flange **116** of clutch element **106** and in the inoperative position of the unit as viewed in Figure 2 cam **112** urges element **106** rearwardly and out of engagement with clutch element **103**. Then, as shaft **43** rotates through its 180° cycle upon switch actuation cam **112** will likewise be rotated through 180° until the cut out portion **113** is in alignment with flange **116** so as to permit spring **107** to move the clutch elements into driving relationship. Under these conditions the drive wheel **102** will continue rotating until the lever **81** is returned to its normal inoperative position and the switch opened.

It will be appreciated that during rotation of the wheel **102** the can **73** will be likewise rotating and after the lid **72** has been completely severed the operator may pivot the lever **81** to its normal position by pressing inwardly on the lower portion thereof. This will result in the switch **33** being opened and link **87** moving gear **41** into registration with the rear half of gear **42** and in proper position for the commencement of another cycle of operation. Due to the inertia of the motor, shaft **38** will continue rotating a sufficient length of time after opening of switch **33** to effect the 180 degrees of rotation to shaft **43** which will effect a raising of plate **63** and the cutter, and cam **112** will separate the drive wheel clutch elements.

A cover **121** is pivotally attached, adjacent one end thereof to the front wall of the housing and is normally positioned as shown in Figure 2 so as to substantially enclose the cutting knife, bead engaging fingers and drive wheel. A spring **122** mounted on the supporting plate **57** serves to resiliently hold the cover in the open position illustrated in Figure 4. It will be further noted that the distal end portion of the cover is provided with a permanent magnet **123** which has a beveled face adapted to be seated on the upper surface of a can lid during

the cutting operation and will serve to hold the lid after its severance from the can.

In Figures 9 through 12 of the drawings a modified form of gear actuating mechanism is disclosed. First, it will be noted that in place of the switch actuating lever **81** which is adapted to close the circuit upon depression of the upper portion thereof, the rearmost leaf contact **33A** of switch **33** is provided with a horizontal extension **131** which extends forwardly through an opening in the housing wall **26**. The contact **33A** is normally urged out of engagement with the other contact of the switch by means of an actuating lever **133** whose distal end in its inoperative position pushes rearwardly on the extension. Member **133** is pivotally mounted on support plate **57** by means of a pin **134** engaging forwardly extending ears on the plate. In this manner, the member may be moved from its inoperative position as shown in Figure 9 to a horizontally disposed operative position illustrated in Figure 12 wherein it overlies the can lid of a can to be opened. Here too, the member may be provided with a magnet **136** in a manner previously set forth. One portion of lever **133** is provided with an extension **141** which, in the inoperative position of the parts is disposed in generally horizontal relationship and in engagement with a notch **142** of a disk **143**. Disk **143** is pivotally mounted on plate **57** by means of a bracket **144** and a pin **146**. Disk **143** is provided with a diametrical extension **147** which is pivotally attached by a pin **148** to a generally horizontally extending link **149**. The other end of link **149** is pivotally secured to the upper end of a link **151**, the latter being pivotally carried on a bracket **152** extending forwardly of rear wall **21**. The lower end of link **151** is provided with a yoke **153** which is adapted to be inserted between gear **41** and its collar **91** in the same manner and for the same purpose as yoke **89** which was described in connection with the main embodiment of the invention.

From the foregoing description the operation of this embodiment should be readily apparent. First, a can is positioned relative to drive wheel **102** and lever **133** is swung downwardly about its pivot **134** to overlie the can lid. This movement of the lever results in a closing of switch **33** so as to energize motor **32** and effect a rotation of shaft **38**, transfer gear **41**, etc. At the same time, the lever extension **141** will rock the disk **143** and its extension **147** clockwise as viewed in the drawings resulting in a downward swinging movement of link **149** and a rocking of link **151** about its pivot on bracket **152** so as to slide gear **41** rearwardly and in engagement with the rear half of gear **42**. Gear **42** has its notched portions reversed from that previously explained so as to permit the initial 180° rotational cycle to be imparted with engagement of the rear half of the gear. After the lid has been cut, member **133** is swung upwardly resulting in a breaking of the switch contacts and at the same time projection **141** engages a shoulder **161** of disk **143** causing the latter to be rotated counterclockwise to its normal position. This, of course, will likewise move the links **149** and **151** and cause transfer gear **41** to be advanced forwardly and ready for another cycle of operation. It should be noted that the switch extension **131** has its distal end provided with a head **162** which is connected to the extension by a diametrically reduced shaft **163**. In this manner, even if a jamming of the can occurs with the lever in its operative position the operator may manually move the extension **131** rearwardly and break the switch contact and maintain the switch in its open position by having a shoulder **164** on the extension engage the rear surface of wall **26** adjacent the opening therein. If desired a spring **166** having one end secured to the housing and its other end to the upper portion of link **151** may be utilized to maintain the links in their proper relationship.

Figures 13 and 14 of the drawings illustrate a modified form of clutch actuating mechanism as well as a

different arrangement of cutting knife. In place of the cam 112, previously discussed for effecting engagement and disengagement of clutch elements 103 and 106, there is here shown a cam 171 which is carried on shaft 43 and which has an outer cam surface of constantly rising configuration. A radial shoulder 172 is provided on the cam and such cam is in normal engagement with an arm 173 of a bell crank whose other arm 174 is pivotally connected to a yoke which is seated between clutch element 106 and a spaced collar 176 provided thereon. A medial portion of the bell crank is pivotally supported by a pin 177 on a bracket 178 mounted on the housing. Once again, during the first 180° of rotation of cam 171 the bell crank will be moved in a counterclockwise direction as viewed in the drawings against the pressure of spring 107 which results in a spacing of the clutch elements and no movement imparted to drive wheel 102. It is during this time that plate 63 is moved downwardly due to cam 59 which causes the cutting member to enter the can and the fingers 76 to engage the top of the can bead. At the end of this 180° of rotation the cam is in a position to permit a clockwise rotation of the bell crank whereby spring 107 in cooperation with the crank movement effects engagement of the clutch elements and continuous rotation of wheel 102 until the motor is deenergized.

It will be also noted in Figure 14 a modified form of cutting member is utilized which may simply comprise a cutting disk 181 suitably journalled on plate 63 and preferably inelined inwardly against the can lid adjacent the bead for effecting the cutting operation. Also, as a further feature of the invention means are provided to permit manual raising of plate 63 and its attached cutter and fingers so as to permit release of a can in event of jamming of the unit. As here illustrated, a lever 186 extends outwardly of the housing and has its inner end pivotally attached to plate 63 by a pin 187. Adjacent pin 187 is a second pin 188 which extends through a generally T-shaped slot in the housing. In this manner, it is possible to manually rotate lever 186 in a clockwise direction as viewed in Figure 13 which will result in plate 63 being rockcd upwardly about the cam 59 with a result of releasing the can from the cutter and bead engaging fingers.

In Figures 15 and 16 a still further modified form of can opener is disclosed in which the shifting of the clutch elements, the closing of the switch and the shifting of the transfer gear 41 is carried out in a slightly different form. In this embodiment an actuating member 201 is pivotally mounted on the front wall of the housing. When thc mcmber is in a raised position the contacts 33 are open and the clutch elements are disengaged and gear 41 is in engagement with the forward half of gear 42. Then, as member 201 is swung downwardly a first cam 202 carried thercon causes the switch contacts to be brought together thereby energizing the motor. Continued movement of the member then results in a movement of transfer gear 41 to its rearward position by means of a shaft 203 having one end in cngagement with a second cam 204 on the member and its other end in engagemcnt with an arm 206 pivotally attached to the housing at 207 and having a yoked portion 208 at the other cnd thereof disposed between gear 41 and its collar 91. Upon further downward movement of the member, a third cam 209 engages a projection 211 of an arm 212. Arm 212 is likewise pivotally attached to the housing at 213 and has a lower forked end 214 which engages the rear clutch elemcnt. A spring 216 normally maintains the arm in a position to effect engagement of the clutch and a compression spriug 217 is provided on arm 206 for normally urging transfer gear 41 to its forward position. Notwithstanding the change in structural charaeteristics the opener is designed to operate in the same manner as the other embodiments.

What is claimed is:

1. An electric can opener comprising a housing, a motor supported within said housing, a can drive member opcratively connected to said motor, a cutter member overlying said drive member extending forwardly and downwardly from said housing, switch means for said motor, and means driven by said motor moving said cutter downwardly upon energization of said motor and upwardly upon deenergization thereby.

2. A can opener of the character described comprising electric drive means including a unidirectional motor and actuating switch, a can cutting element extending generally downwardly, cutting element support means mounted for vertical reciprocating movement, rotatable can rotating means positioned adjacent said cutting element and operatively connected to said drive means, and means interconnecting said drive means and said support means whereby upon starting of said motor said support means and the cutting element carried thereby are caused to move downwardly towards said can rotating means and remains in such position during motor rotation and upon opening of said motor switch said support means and cutting element are moved upwardly and remain in such upward position until reenergization of said motor, and means actuatable upon completion of said downward movement of said support means for rotating said can rotating means.

3. A can opener including a substantially enclosed casing, a motor positioned within said casing, a motor switch having a pair of contacts normally maintained in spaced relation, a switch actuating element for closing said contacts, a downwardly directed cutter positioned exteriorly of said casing, a rotatable can drive wheel disposed adjacent said member operatively connected to said motor, a vertically reciprocating member secured to said cutter, a cam operatively engageable with said reciprocating member, means interconnecting said switch actuating element and said cam whereby said cam is rotated a predetermined number of degrees to move said reciprocating member downwardly upon movement of said actuating element to close said contacts and said cam is rotated to move said reciprocating member upwardly upon contra movement of said element, and means delaying rotation of said can drive wheel until said reciprocating member has reached its downward position.

4. Apparatus as set forth in claim 3 in which said last named means includes clutch elements respectively connected to said drive wheel and said motor, means normally urging said clutch elements into driving engagement, and means operable upon rotation of said cam effecting disengagement of said clutch elements.

5. A device of the character described comprising a motor having a switch, a drive shaft driven by said motor, a transfer gear axially slidable on and rotatable with said drive shaft, a second shaft in generally parallel spaced relation to said drive shaft and having a pair of axially spaced gear segments selectively engageable with said transfer gear upon axial movement of the latter, a cam carried on said second shaft, a vertically extending support plate having a cam follower thereon engageable with said cam and adapted to be vertically reciprocated upon cam rotation, a cutter carried on said plate and adapted to engage the lid of a can, an actuating lever for said motor switch, means interconnecting said lever and said transfer gear for selectively shifting the lattcr into alignment with the respective gear segments upon movement of said lever to open and close said switch, a can drive wheel freely journalled on said drive shaft and having a clutch element secured thereto, said drive whcel underlying said cutter and adapted to engage the bead of a can, a second clutch element mounted on said drive shaft for rotation therewith and axially movable thercon, means normally urging said clutch elements into driving relationship, and cam means mounted for rotation with said second shaft engageable with said

second clutch element for disengaging the same in one position of said support plate.

6. Apparatus as set forth in claim 5 including a can bead engaging element carried by said plate in horizontally spaced relation to said cutter, said bead engaging element overlying said can drive wheel and normally urged towards the latter.

7. Apparatus as set forth in claim 6 in which said segment gears permit only substantially 180° of rotation of said second shaft in each position of axial movement of said transfer gear, and said cam will move said support plate unidirectionally during each such rotation of said second shaft.

8. An electric can opener including a motor having a pair of normally open contacts, a lever movable from a first inoperative position to a second operative position for closing said contacts, a first shaft, drive means interconnecting said motor and first shaft, a transfer gear mounted for axial movement on said first shaft, a can drive wheel on said first shaft, means interconnecting said lever and gear for axially moving the latter into two selected positions as said lever is moved between operative and inoperative positions, a second shaft, first and second gear means on said second shaft selectively engageable with said transfer gear in said two positions thereof, each of said gear means imparting a rotation of approximately 180° to said second shaft upon engagement with said transfer gear, said second shaft having a cam thereon, a plate in engagement with said cam and vertically movable upward and downward during two successive 180 degrees of rotation of said second shaft, and a cutter member carried by said plate and overlying said drive wheel whereby upon downward movement of said plate, the bead of a can will be clamped between said cutter member and said can drive wheel.

9. A device as set forth in claim 8 including clutch means interposed between said first shaft and said can drive wheel, and means operable for normally engaging said clutch means, and means operable upon rotation of said second shaft for disengaging said clutch means.

10. A can opener as set forth in claim 8 in which said means interconnecting said lever and gear comprises a single link having one end thereof pivotally attached to said lever and the other end thereof provided with a yoke portion, and means on said transfer gear for receiving said yoke portion.

11. A device as set forth in claim 9 in which said last named means includes a bell crank lever having one arm thereof engageable with said clutch means, a cam on said second shaft and engageable with the other arm of said bell crank lever.

12. A device as set forth in claim 9 in which said transfer gear movement, said clutch engagement and disengagement and said closing of said switch is all operated by movement of said lever.

13. An electric can opener comprising a casing, a motor supported within said casing, a drive shaft driven by said motor, a transfer gear axially slidable on and rotatable with said drive shaft, can rotating means operatively connected to said drive shaft, a second shaft having first and second gear means thereon, means moving said transfer gear into selective engagement with said first and second gear means, a can cutting element, and means operatively interconnecting said second shaft and said cutting element for vertically reciprocating the latter from and towards said can rotating means, and means carried on said second shaft for effecting rotation of said can rotating means upon movement of said cutting element towards said can rotating means.

14. A can opener of the character described including drive means having a motor and actuating switch, a

generally downwardly directed can cutting element, element support means mounted for movement in a generally vertical plane, rotatable can rotating means positioned subjacent said cutting element and operatively connected to said drive means, means interconnecting said drive means and said support means whereby upon starting of said motor said support means and said cutting element are moved downwardly towards said can rotating means, means operative upon said latter movement effecting rotation of said can rotating means, and said support means being independently movable away from said can rotating means during motor operation.

15. An electric can opener comprising a housing, a motor disposed within said housing, a can drive member operatively connected to said motor and extending forwardly of said housing, a cutter overlying said drive member and extending forwardly and downwardly of said housing, switch means for said motor, means interconnecting said switch means, said motor, and said cutter whereby unidirectional rotation of said motor moves said cutter towards said drive member in one position of said switch means and away from said drive member in another position of said switch means, a cover pivotally attached to said housing and normally covering said cutter and drive means, and said cover being manually movable to a generally horizontal position overlying said cutter and a can being opened thereby.

16. Apparatus as set forth in claim 15 including a magnet carried by said cover and adapted to engage the lid of a can engaged by said drive member and cutter.

17. A can opener including a motor, a downwardly directed can cutter, a rotatable can drive wheel positioned subjacent said cutter, means interconnecting said cutter to said motor whereby upon energization of the latter said motor will drive said cutter towards said drive wheel for clamping a can bead therebetween and said motor will raise said cutter away from said drive wheel upon deenergization thereof, clutch means operatively connecting said motor and said drive wheel, and means effecting engagement of said clutch means for rotating said wheel upon lowering of said cutter and disengagement thereof upon raising of said cutter.

18. A can opener including a casing having a front wall, a motor positioned within said casing, a rotatable can drive wheel extending forwardly of said casing wall, a can cutter overlying said drive wheel, means connecting said motor to said cutter whereby rotation of said motor effects a selective raising and lowering of said cutter from and towards said drive wheel, means interconnecting said motor and drive wheel, a cover member pivotally attached to said wall for movement about a horizontal axis above said cutter, said cover member being manually movable from a generally vertical position substantially completely enclosing said cutter and drive wheel to a generally horizontal position overlying said cutter and at least a portion of a can being opened thereby.

19. Apparatus as set forth in claim 18, in which said cover member has an end wall and a peripheral skirt, the edge of said skirt being positioned adjacent said casing wall in the vertical position of said member, and a magnet mounted on said member and adapted to engage the lid of a can being opened.

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